

SWBAT

experiment to determine
what causes sliding on a
ramp

Sep 4-7:31 AM

Welcome!!!

SECA CP Physics
Monday 8 March 2016



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Room C-244

Centering
(quotes)

- Show me SchoolView if you want phone in class...
- VECTOR ADDITION due THURSDAY!!!

Opening Activity - Quick Write:

What are all the kinds of forces you can name?

Which ones may be applicable to the falling pillow
and board?

~APPLIED TENSION
✓NORMAL SPRING
✓GRAVITY ?AIR RES.
✓FRICTION

\$2?

I don't believe you have to be better than everybody else. I believe you have
to be better than you ever thought you could be.

Ken Venturi

Sep 7-7:04 AM

What we should have solid:

Memorize our ~~5~~⁸ vocab cards, units, vector or not, definition, formula

Be able to answer distance vs displacement questions

Be able to make measurements of real-life motion. Know what is likely to make timing things difficult and how to get more reliable timing results

Be able to convert between miles and meters, between hours, minutes, and seconds

Be able to calculate speed = dist/time and velocity = disp/time

Know what all of the symbols in the UAM equations stand for and mean

Be able to turn a UAM word problem into a list of knowns and unknowns

Be able to pick the equation with those 4 things in it

Be able to put the knowns into that equation

(Be able to solve for the unknown)

→ PROJECTILES: V_x IS CONSTANT; $a_y = -9.8 \text{ m/s}^2$ ^{V_y CHANGES} PG 42

PG 43 TIME, Δt , CONNECTS x & y

PG 49 VECTORS INTO x & y , ADD VECTORS
SOH - CAH - TOA

PG 59 DIFFERENCE BETWEEN MASS & WEIGHT

PG 61 NET FORCE

PG 63 FREE BODY DIAGRAMS

$$F = m \cdot a$$

QW every day to review - gather responses to front board.

Dec 4-9:15 AM

Unit	Chapters	Date
Left-Side Items	Page	Right-Side Items
REFLECTION ON NOTES	2	EDITED ADAM SAUGE
HOW FAR FROM BRIDGE	4	"FORT STUEBEN"
REFLECTION ON NOTES	6	HAWK: BASE UNITS
PR: DISTANCE & DISPLACEMENT	8	HAWK: FP DISPLACEMENT
DIAGRAM & STEPS	10	TIMING & ERROR
SUMMARY OF TIMING	12	HOW TO BUILD A TABLE
PR: CONVERTING SOLUTIONS	14	HAWK: FP CONVERSIONS
PR: VELOCITY & SPEED	16	HAWK: FP SPEED & VELOCITY
SPEED WORD PROBLEMS	18	ALGEBRA FOR PHYSICS
LAB JOURNAL 10/7	20	LAB JOURNAL 10/8
...	...	HAWK: FP GRAPH POSITION
LAB JOURNAL 10/12	24	EXPERIMENT RUBRIC
26 USE FOR PROJECT	22	
OBSERVATIONS OF ORF	28	FP: INTRO TO ACC.
REVIEW FOR TEST	30	BALL ON RAMP
VECTORS, DIRECTION	32	FP: BASIC ACC EXAMPLE
PRACTICE UAM	34	FP: INTRO TO UAM
FALLING OBJECTS PACKET	36	FP: INTRO TO FREEFALL
MY FREE FALL WORD PROBLEM	38	3-ACT FALLING GLOWSTICK
Toy popper experiment	40	Free fall class solutions
Launched vs. Dropped	42	FP: INTRO TO PROJECTILE MOTION
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PROJ. L PRACTICE PROBS.	46	PROJECTILES PRACTICE
OUR VECTOR PRACTICE	48	FP - VECTOR COMPONENTS
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MORE PROJECT?	66	MYTHBUSTERS
FP VECTOR ADDITION COMPONENTS	68	VECTOR EXAMPLE
		NORMAL VS. GRAVITY

Sep 5-9:09 AM

Pg 71

→ PERPENDICULAR

Normal Force and Gravity...

Newton's 1st Law: **OBJECTS TEND TO KEEP DOING WHAT THEY WERE DOING UNLESS ACTED UPON BY A FORCE**

Dropped straight down: $F_{\text{GRAV}} \downarrow$

Board at 90° $F_{\text{FRIC}} > 0$
 LANDED RIGHT UNDER WHERE LET GO

Board at 0° $F_{\text{NORMAL}} \uparrow$ $F_{\text{GRAV}} \downarrow$ NO FRIC

Board at 80° $F_{\text{GRAV}} \downarrow$ $F_{\text{NORMAL}} \swarrow$ $F_{\text{FRIC}} \nearrow$

Board at 10° $F_{\text{GRAV}} \downarrow$ $F_{\text{FRIC}} \rightarrow$ $F_{\text{NORMAL}} \nwarrow$

Board at 45°

$F_{\text{gravity}} \downarrow$ $F_{\text{friction}} \nearrow$ $F_{\text{normal}} \swarrow$

Application? CONSTRUCTION, MOVERS
 FIRE FIGHTERS, LADDERS, ROPES X GAME

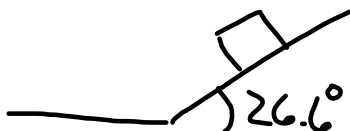
Mar 7-7:53 AM

PG 70 PHET RAMP!

TRIAL #1 CRATE $m = 100\text{kg}$
 POSITION 4m

STARTING ANGLE 10°

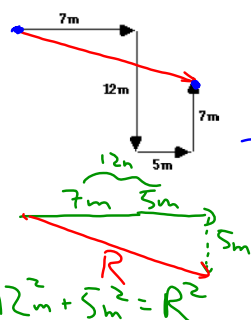
SMALLEST ANGLE IT MOVES....
 26.6°



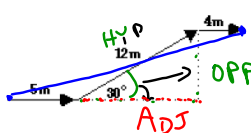
Mar 8-10:07 AM

PG 69

Vector examples:



x	y
+7m	+7m
+5m	-12m
12m	-5m



CAH
 $R \cos 30^\circ = \frac{ADJ}{HYP} \cdot 12m$
 $ADJ = 10.49m$

SOH
 $12m \sin 30^\circ = \frac{OPP}{HYP} \cdot 12m$

$\sqrt{R^2} = 19.49^2 + 6^2$
 $= \sqrt{415.8m^2}$

$R = 20.4m$

x	y
+5m	OPP = +6m
+4m	
19.49m	+6m



Mar 4-8:59 AM

Mar 7-10:11 AM